

## Natural Resources

### Course Description

A course that provides an opportunity for students to increase awareness of the close ties among living organisms as well as natural and environmental concerns with the interrelationships of living organisms and the world around us. Students are exposed to careers related to natural resources systems. Classroom and laboratory activities are supplemented through supervised agricultural experiences and leadership programs and activities.

### Course Code: 013000

### Program(s) of Study to which this course applies:

- Environmental and Natural Resources

Course Content	Crosswalk to Common Core Academic Standards	Crosswalk to Nebraska Academic Standards	Crosswalk to Nebraska Career Readiness Standards	Crosswalk Clarification
<b>Standard 1. Students will recognize, describe and understand the importance of renewable natural resources.</b>				
Benchmark 1.1 Define and classify renewable natural resources. <u>Sample performance indicators:</u> <ul style="list-style-type: none"> <li>• Brainstorm a list of natural resources and classify as either renewable or nonrenewable.</li> <li>• Research a particular renewable natural resource and justify its classification as renewable.</li> </ul>	ELA.RST.11-12.4	LA.12.1.5 SS.12.3.5.b	CR.5.A.1	
Benchmark 1.2 Identify the components and structural layers of the earth's atmosphere.	ELA.RST.11-12.4	LA.12.1.5 SS.12.3.3.d	N/A	

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<u>Sample performance indicators:</u> <ul style="list-style-type: none"> <li>Create a model to demonstrate the layers of the earth's atmosphere.</li> <li>Determine characteristics of clean air.</li> <li>Describe common threat to air quality.</li> </ul>				
<p>Benchmark 1.3 Identify and describe tree, plant, fish and wildlife species.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Establish a collection of local tree and plant species.</li> <li>Create student presentations describing native fish and wildlife species.</li> </ul>	ELA.RST.11-12.4 ELA.SL.11-12.4 ELA.WHST.11-12.2.b	LA.12.1.5 LA.12.2.1.b LA.12.3.1.a	CR.2.B.1 CR.2.C.1	When students <i>describe</i> information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students' written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11-12.2.b, ELA.SL.11-12.4; NE: CR.2.B.1, CR.2.C.1, LA.12.2.1.b, LA.12.3.1.a).
<p>Benchmark 1.4 Identify and describe renewable energy resources.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Compare and contrast various alternative energy sources.</li> <li>Research costs associated with implementing a renewable energy source for the home.</li> </ul>	ELA.RST.11-12.4 ELA.SL.11-12.4 ELA.WHST.11-12.2.b	LA.12.1.5 LA.12.2.1.b LA.12.3.1.a SC.12.4.3.c SS.12.3.5.b	CR.2.B.1 CR.2.C.1	When students <i>describe</i> information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students' written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11-12.2.b,

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				ELA.SL.11–12.4; NE: CR.2.B.1, CR.2.C.1, LA.12 2.1.b, LA.12.3.1.a).
<b>Standard 2. Students will recognize, describe and understand the importance of nonrenewable natural resources.</b>				
Benchmark 2.1 Define and classify nonrenewable natural resources. <u>Sample performance indicators:</u> <ul style="list-style-type: none"> <li>Brainstorm a list of natural resources and classify as either renewable or nonrenewable.</li> <li>Research a particular nonrenewable natural resource and justify its classification as nonrenewable.</li> </ul>	ELA.RST.11-12.4	LA.12.1.5  SS.12.3.5.b	CR.5.A.1	
Benchmark 2.2 Identify and describe soil resources. <u>Sample performance indicators:</u> <ul style="list-style-type: none"> <li>Classify land into the 8 land capability classes.</li> <li>Identify factors affecting soil formation.</li> <li>Determine soil texture using various methods.</li> </ul>	ELA.RST.11-12.4 ELA.SL.11-12.4 ELA.WHST.11-12.2.b	LA.12.1.5 LA.12.2.1.b LA.12.3.1.a  SS.12.3.5.b	CR.2.B.1 CR.2.C.1	When students <i>describe</i> information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students' written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11–12.2.b, ELA.SL.11–12.4; NE: CR.2.B.1, CR.2.C.1, LA.12 2.1.b, LA.12.3.1.a).

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<p>Benchmark 2.3 Identify and describe water resources.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Compare and contrast groundwater and surface water resources.</li> <li>Describe properties of watersheds and identify the boundaries of local watersheds.</li> </ul>	ELA.RST.11-12.4 ELA.SL.11-12.4 ELA.WHST.11-12.2.b	LA.12.1.5 LA.12.2.1.b LA.12.3.1.a  SS.12.3.5.b	CR.2.B.1 CR.2.C.1	<p>When students <i>describe</i> information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students' written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11-12.2.b, ELA.SL.11-12.4; NE: CR.2.B.1, CR.2.C.1, LA.12.2.1.b, LA.12.3.1.a).</p>
<p>Benchmark 2.4 Identify and describe nonrenewable energy resources.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Compare and contrast various nonrenewable energy resources.</li> <li>Analyze and prioritize use of nonrenewable energy resources based on various factors (cost, availability, efficiency, etc.).</li> </ul>	ELA.RST.11-12.4 ELA.SL.11-12.4 ELA.WHST.11-12.2.b	LA.12.1.5 LA.12.2.1.b LA.12.3.1.a  MA.12.4.1.a  SC.12.4.3.c  SS.12.3.5.b	CR.2.B.1 CR.2.C.1	<p>When students <i>describe</i> information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students' written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11-12.2.b, ELA.SL.11-12.4; NE: CR.2.B.1, CR.2.C.1, LA.12.2.1.b, LA.12.3.1.a).</p> <p>Alignment presumes that students will interpret data to analyze and describe</p>

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				nonrenewable energy resources (NE: MA.12.4.1.a)
<b>Standard 3. Students will apply scientific principles to natural resource conservation and preservation.</b>				
<p>Benchmark 3.1 Identify, compare, and describe the components of ecosystems.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Describe the processes associated with ecological succession.</li> <li>Explain the relationship among food chains, food webs, and the biotic pyramid.</li> <li>Diagram biogeochemical cycles and explain the processes. (hydrogen, carbon, water)</li> </ul>	<p>ELA.RST.11-12.4</p> <p>ELA.SL.11-12.4</p> <p>ELA.WHST.11-12.2.b</p>	<p>LA.12.1.5</p> <p>LA.12.2.1.b</p> <p>LA.12.3.1.a</p> <p>SC.12.3.3.b</p> <p>SC.12.3.3.c</p>	<p>CR.2.B.1</p> <p>CR.2.C.1</p> <p>CR.5.A.1</p>	<p>When students describe information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students' written or oral presentations must include all the main ideas and relevant details on the subject (CC: ELA.WHST.11-12.2.b, ELA.SL.11-12.4; NE: CR.2.B.1, CR.2.C.1, LA.12.2.1.b, LA.12.3.1.a).</p>
<p>Benchmark 3.2 Describe the conservation and preservation practices for natural resources.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Distinguish between conservation and preservation.</li> <li>Develop a model that demonstrates important soil and water conservation practices.</li> <li>List and describe factors associated with wind and water erosion.</li> </ul>	<p>ELA.SL.11-12.4</p> <p>ELA.WHST.11-12.2.b</p>	<p>LA.12.2.1.b</p> <p>LA.12.3.1.a</p> <p>SC.12.4.2.c</p> <p>SS.12.3.5.d</p>	<p>CR.2.B.1</p> <p>CR.2.C.1</p>	<p>When students describe information or ideas, they communicate their knowledge through either speaking or writing. To demonstrate full knowledge on the topic, students' written or oral presentations must include all the main ideas and relevant</p>

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<ul style="list-style-type: none"> <li>Create a presentation outlining methods for protecting water quality.</li> </ul>				<p>details on the subject (CC: ELA.WHST.11–12.2.b, ELA.SL.11–12.4; NE: CR.2.B.1, CR.2.C.1, LA.12.2.1.b, LA.12.3.1.a).</p> <p>Alignment presumes that students will evaluate the impact of human activity on natural resources (NE: SC.12.4.2.c).</p>
<p>Benchmark 3.3 Apply natural resources concepts to agricultural production practices.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Explain the relationship between land characteristics and water quality.</li> <li>Identify major threats to water quality and practices to reduce water pollution.</li> <li>List appropriate tillage and residue management strategies.</li> </ul>	N/A	<p>MA.12.4.1.a</p> <p>SC.12.3.3.d</p> <p>SC.12.4.2.c</p> <p>SS.12.3.5.b</p>	<p>CR.1.A.4</p> <p>CR.5.A.1</p> <p>CR.5.A.4</p>	<p>Alignment presumes that students will interpret data to apply natural resources concepts to agricultural productions practices (NE: MA.12.4.1.a).</p> <p>Alignment presumes that students will evaluate the impact of human activity on natural resources (NE: SC.12.4.2.c).</p>
<p>Benchmark 3.4 Demonstrate natural resource enhancement techniques.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Identify approved practices in wildlife management.</li> <li>Identify methods of wildlife habitat improvement.</li> <li>Evaluate wildlife habitat to determine carrying capacity.</li> </ul>		<p>MA.12.1.3.a</p> <p>MA.12.4.1.a</p> <p>SC.12.3.3.d</p> <p>SS.12.3.5.b</p>	<p>CR.1.A.4</p>	<p>Alignment presumes that students will compute carrying capacity numbers (NE: MA.12.1.3.a) and interpret data to evaluate natural resource enhancement techniques (NE: MA.12.4.1.a).</p>

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<ul style="list-style-type: none"> <li>Understand the role of fire in forest and rangeland ecosystems.</li> </ul>				
<b>Standard 4. Students will apply scientific principles to natural resource management.</b>				
<p>Benchmark 4.1 Use tools, equipment, machinery, and technology to accomplish environmental tasks.</p> <p><u>Sample performance indicators:</u></p> <ul style="list-style-type: none"> <li>Understanding environmental maps.</li> <li>Determine water quality using a Secchi disk.</li> <li>Use surveying equipment; including GPS and a compass, to determine area, boundaries, and elevations.</li> </ul>	ELA.RST.11-12.3	LA.12.1.6.k LA.12.3.2  MA.12.1.3.a MA.12.4.1.a  SC.12.1.1.d	CR.1.A.4	<p>Alignment presumes that students must comprehend oral or written instructions to complete the task (CC: ELA.RST.11–12.3; NE: LA.12.1.6.k, LA.12.3.2).</p> <p>Alignment presumes that students compute area boundaries (NE: MA.12.1.3.a) and interpret data generated from tools and equipment to accomplish environmental tasks (NE: MA.12.4.1.a).</p> <p>Alignment presumes that students will select and use appropriate equipment for environmental tasks (NE: SC.12.1.1.d).</p>
Benchmark 4.2 Identify laws and their purpose associated with natural resources.	N/A	SS.12.1.2.d	CR.3.B.4 CR.3.C.3	

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<u>Sample performance indicators:</u> <ul style="list-style-type: none"> <li>Research laws related to hunting.</li> <li>Research current public and private land issues.</li> </ul>				
Benchmark 4.3 Explore natural resource careers.  <u>Sample performance indicators:</u> <ul style="list-style-type: none"> <li>Research and report on natural resource career opportunities.</li> <li>Visit Nebraska Game and Parks Commission to discuss careers.</li> </ul>		SS.12.2.6.b–d	CR.1.B.1 CR.5.B.1 CR.10.A.1 CR.10.A.2 CR.10.D.2	

### Reference Standards Sources

- NAS = National Agriculture Standards
- TX = Texas Essential Knowledge and Skills for Career and Technical Education
- CA = California Forestry and Natural Resources Pathway
- IA = Iowa Content Standards and Benchmarks
- NE = Links to Standards

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**Approval date:**

**Revision date** (if changes made after final draft): 7-27-11



## Other Information

Suggestions for innovative teaching and learning strategies:	<ul style="list-style-type: none"> <li>• Trap Shooting</li> <li>• Archery</li> <li>• Fishing</li> <li>• Camping</li> <li>• Raising Game Birds</li> <li>• Aquaculture</li> <li>• Taxidermy</li> <li>• Field Trips (State Park, Bird Watching, Hatchery)</li> </ul>
Related assessments:	<ul style="list-style-type: none"> <li>• Hunter Education</li> <li>• Boating Safety</li> <li>• Fishing Education</li> </ul>
Extended learning opportunities:	<ul style="list-style-type: none"> <li>• Envirothon</li> <li>• Land Judging</li> <li>• Range Judging</li> <li>• Natural Resources Speaking Leadership Skills Event</li> <li>• Natural Resources Contest Career Development Event</li> <li>• Proficiency Awards</li> <li>• Supervised Agricultural Experience (SAE)</li> <li>• Range Boards</li> <li>• 4-H projects</li> <li>• Safety Camp</li> <li>• View a prescribed burn</li> </ul>